

WHAT IS CLAIMED IS:

- 1 1. A method for actuating a perforating gun in a wellbore, comprising the steps of:
- 2 (a) providing a first downhole structure that comprises a non-acoustic
- 3 identification transmitter unit that stores an identification code and transmits
- 4 a non-acoustic signal corresponding to the identification code;
- 5 (b) providing a perforating gun having a non-acoustic receiver unit that can
- 6 receive the signal transmitted by the identification transmitter unit, decode
- 7 the signal to determine the identification code corresponding thereto, and
- 8 compare the identification code to a preset target identification code;
- 9 (c) lowering the perforating gun in close enough proximity to the first downhole
- 10 structure so that the non-acoustic receiver unit can receive the non-acoustic
- 11 signal transmitted by the non-acoustic identification transmitter unit;
- 12 (d) comparing the identification code determined by the non-acoustic receiver
- 13 unit to the target identification code; and
- 14 (e) if the determined identification code matches the target identification code,
- 15 the perforating gun is fired.
- 1 2. The method of claim 1, wherein the identification code is used to determine the
- 2 depth of the perforating gun in the borehole.
- 1 3. The method of claim 1, wherein the perforating gun is lowered with a supporting
- 2 structure.
- 1 4. The method of claim 1, wherein the perforating gun is lowered through free fall.
- 1 5. A method or orienting downhole equipment in a wellbore, comprising the steps of:
- 2 (a) providing a downhole conduit having at least one inlet and a plurality of
- 3 outlets, the downhole conduit further having a non-acoustic identification
- 4 transmitter unit that stores an identification code and transmits a non-acoustic
- 5 signal corresponding to the identification code;
- 6 (b) providing a downhole structure that comprises a non-acoustic receiver unit
- 7 that can receive the signal transmitted by the identification transmitter unit,

- 8 decode the signal to determine the identification code corresponding thereto,
9 and compare the identification code to a preset target identification code; the
10 downhole structure moveable through the conduit;
11 (c) moving the downhole structure in close enough proximity to the non-acoustic
12 receiver unit to receive the non-acoustic signal transmitted by the non-
13 acoustic identification transmitter unit; and
14 (d) orienting the downhole structure through one of the plurality of outlets based
15 on the determined identification code.
- 1 6. The method of claim 5, wherein the conduit is a Y-Block.
- 1 7. The method of claim 6, wherein the non-acoustic identification transmitter unit is
2 located above the Y-Block to guide the downhole structure through one of the
3 plurality of outlets.
- 1 8. The method of claim 6, further comprising a second non-acoustic identification
2 transmitter unit located below the Y-Block to provide indication of correct entry into
3 the outlets.
- 1 9. A method of providing telemetry from downhole to a surface operator, comprising:
2 (a) providing a transmitter unit in a downhole structure;
3 (b) providing a downhole tool having a non-acoustic receiver unit, data sensors, a
4 microprocessor, and releasably storing a plurality of non-acoustic transmitter
5 units;
6 (c) moving the downhole tool in close enough proximity to the downhole
7 structure so that the non-acoustic receiver unit can receive the non-acoustic
8 signal transmitted by the non-acoustic transmitter unit;
9 (d) writing data acquired from the data sensors to one of the plurality of non-
10 acoustic transmitter units, the data written by the microprocessor;
11 (e) releasing the one of the plurality of non-acoustic transmitter units; and
12 (f) returning the one of the plurality of non-acoustic transmitter units to the
13 surface.
- 1 10. The method of claim 9, wherein the data sensors provide temperature measurements.

- 1 11. The method of claim 9, wherein the data sensors provide pressure measurements.
- 1 12. The method of claim 9, wherein the data sensors provide time measurements.
- 1 13. The method of claim 9, wherein circulating fluids provide for the return to the
2 surface of the one of the plurality of non-acoustic transmitter units.
- 1 14. A method of providing communication downhole from the surface of a well,
2 comprising:
3 (a) providing a downhole structure having a non-acoustic receiver unit; and
4 (b) moving a non-acoustic transmitter unit into close enough proximity of the
5 downhole structure for the non-acoustic receiver unit to receive a signal from
6 the non-acoustic transmitter unit.
- 1 15. The method of claim 14, wherein the downhole structure further has a
2 microprocessor provided for analyzing the signal provided by the transmitter unit.
- 1 16. The method of claim 15, wherein the microprocessor actuates or installs downhole
2 equipment.
- 1 17. The method of claim 14, wherein the non-acoustic transmitter unit is moved by
2 wellbore fluids.
- 1 18. The method of claim 14, wherein the non-acoustic transmitter unit is moved by
2 attachment to a drop ball.
- 1 19. A method of receiving data from a downhole well from the surface of the well,
2 comprising:
3 (a) providing non-acoustic transmitter units in the downhole well;
4 (b) moving at least one non-acoustic receiver units into close enough proximity
5 to the non-acoustic transmitter units to receive data; and
6 (c) return the non-acoustic transmitter units to the surface.
- 1 20. The method of claim 19, wherein the at least one receiver unit is moved by well
2 fluids.
- 1 21. The method of claim 19, wherein the at least one receiver unit is moved by a
2 conveyance tool.

S
↓
well

downhole structure

Surface
↑
well

Surface
Q

1 22. The method of claim 19, wherein the non-acoustic transmitter units are returned with
2 well fluids.

1 23. The method of claim 19, wherein the non-acoustic transmitter units are returned by a
2 conveyance tool.

1 24. A method for communicating between downhole tools and equipment in a wellbore,
2 comprising the steps of:

- 3 (a) providing a first downhole structure having one or more non-acoustic
4 transmitter units and one or more non-acoustic receiver units;
5 (b) providing a second downhole structure having one or more non-acoustic
6 transmitter units and one or more non-acoustic receiver units;
7 (c) receiving a signal from the one or more non-acoustic transmitter units of the
8 first downhole structure with the one or more non-acoustic receiver units of
9 the second downhole structure; and
10 (c) receiving a signal from the one or more non-acoustic transmitter units of the
11 second downhole structure with the one or more non-acoustic receiver units
12 of the first downhole structure.

1 25. The method of claim 24, further comprising actuating or installing downhole
2 equipment.

1 26. The method of claim 24, further comprising returning the signal to the surface of the
2 wellbore.

1 27. The method of claim 24, further comprising storing the signal with one or more non-
2 acoustic receiver units of the first and second downhole structure.